PEOPLE POWER: WALKING AND CYCLING IN LOW-CARBON TRANSPORT SYSTEMS

11.30 – 12.45
SAUL BILLINGSLEY
DIRECTOR GENERAL,
FIA FOUNDATION

PEOPLE POWER: WALKING AND CYCLING
IN LOW-Carbon TRANSPORT SYSTEMS
ABOUT THE FIA FOUNDATION

OUR MISSION:
To promote public safety and public health, the protection and preservation of human life, and the conservation, protection and improvement of the physical and natural environment.
OUR ‘SAFE, CLEAN, FAIR & GREEN’ AGENDA

SAFE ROADS FOR ALL

CLEAN AIR FOR ALL

FAIR ACCESS TO MOBILITY

DOUBLE FUEL EFFICIENCY
FIA FOUNDATION SUPPORT FOR ACTIVE MOBILITY

SHARE THE ROAD – POLICY SUPPORT IN EAST AFRICA

BEFORE

AFTER

PEDESTRIAN & CYCLE INFRASTRUCTURE SAFETY ASSESSMENTS

NEW PARTNERSHIP WITH WRI/EMBARQ

PROMOTING CHILD MOBILITY RIGHTS WITH UNICEF
ONE GOES UP, THEY ALL COME DOWN

INVEST IN WALKING & CYCLING

CARBON EMISSIONS

TRAFFIC INJURIES

OBESITY & NCDs

AIR POLLUTION
THE POST-2015 OPPORTUNITY FOR CLIMATE ACTION...

...TO TRANSFORM OUR STREETS
PEOPLE POWER: WALKING AND CYCLING IN LOW-CARBON TRANSPORT SYSTEMS
CLLR. CHRISTINE WALTERS
JOHANNESBURG MAYORAL COMMITTEE MEMBER FOR TRANSPORTATION

PEOPLE POWER: WALKING AND CYCLING IN LOW-CARBON TRANSPORT SYSTEMS
EcoMobility World Festival, Johannesburg, South Africa: Taking the legacy forward
Message of support

The Executive Mayor: Cllr Mpho Parks Tau, the City of Johannesburg, its citizens and employees supports our President of South Africa’s message of condolence and support to the citizens of Paris, of France and the citizens of the international community during this period of mourning and recovery.
What is Eco Mobility

- EcoMobility means subsidiarity in urban mobility and transport. It presents a bottom-up approach to setting a priority order for the individual choice of transport modes as well as for urban planning and investment. 1 - Walking. 2 - Cycling and wheeling.
Background to the City of Johannesburg

- Joburg has a population of 4.4 million and is growing (3.4% p.a.)
- Spread over a large area so population density is low (2 700 per square km)
- 23% of economically active people are unemployed
- 67.4% of households live on less than R3200 per month with a large percentage of poor household’s income going towards transport
- Joburg contributes 56% to national carbon emissions and Transport has the highest demand for energy (67%)
• The City of Johannesburg hosted the EcoMobility World Festival 2015 during the month of October 2015.

• This was a major local and international event that attracted delegates, thought-leaders and media from cities across the world for a programme of events, dialogues and exhibitions.

• It was hosted in partnership with ICLEI – Local Governments for Sustainability – a network of 1 000 cities and towns in 86 countries committed to building a sustainable future.

• It included changing the use of certain streets to make it uncomfortable to use private cars while easier and more attractive to use public transport, walk or cycle.

“We will demonstrate to the world that an EcoMobile future is possible and that public transport, walking and cycling can be accessible, safe and attractive,” -- Mpho Parks Tau, Executive Mayor of Johannesburg, March 2015
What the Festival sought to achieve

- Create conversations around sustainability, decongestion, public transport and green technologies
- Enable behavioural change from private car use towards eco-mobility (walking, cycling and use of public transport)
- Kick start the process of decongesting Sandton
- Provide a platform for Joburg and cities around the world into the COP21
- Showcase infrastructural interventions that the City of Johannesburg has introduced to promote eco-mobility
- Show the benefits of reduced congestion and eco-mobility for productivity, quality of life, air quality, emission standards
The Sandton CBD is the commercial and financial hub of southern Africa – often referred to as the “richest square mile” on the Continent.

- It is a vital precinct within Johannesburg and an engine for growth in Gauteng.
- It is a major transport hub.
- The City of Johannesburg values the contribution Sandton makes to economic prosperity, job creation and entrepreneurship.

AND IT HAS A MAJOR TRANSPORT CHALLENGE
So it was a City imperative to decongest Sandton!

- It is one of the most congested precincts in Johannesburg;
- More than 100 000 people move in and out of its core every day;
- Almost 80 000 cars enter and leave the Sandton CBD daily;
- Number of commuters in Sandton grows by 3.4% per year;
- Traffic in Sandton will grind to a halt – unless major interventions are made;
- Time lost in traffic is revenue loss for business;
Festival components

• Changing the use of certain streets in Sandton and towards Sandton for a month and the provision of alternative forms of transport to those who would usually use their private car

• EcoMobility Dialogues in week of 5 – 9 October 2015;

• Month long EcoMobility World Exhibition showcasing local and international Eco mobile vehicles

• Street festivals, races, shows and similar events focusing on EcoMobility and the use of the streets.

• Legacy projects (Rea Vaya BRT, cycle paths, donation of bikes)
During EcoMobility there was:

- Additional intercity rail (Gautrain)
- Park and Rides
- Express lanes from Park and Rides
- Free mini bus taxi shuttles around a dedicated public transport loop
During EcoMobility Festival we:

• Introduced demonstration dedicated cycle lanes in Sandton CBD and four cycle routes from different parts of the city
• Held a recreational ride called Freedom Ride attracting 5000 cyclists on a Sunday morning
• Started working with poorer communities on a bike distribution programme (part of donations, part entrepreneurship support)
Walking
During the Festival, the number of pedestrians on the closed off roads increased five times.

We are trying to retrofit the Sandton CBD to be pedestrian friendly.
Media and mobilisation

• One of the successful aspects of the festival was the conversations and debate over media – especially social media

• There were over 26 million social media impressions

• On the next slide, is a brief analysis of social media sentiment – showing increasing public understanding of the relationship between vehicles and climate change
Social: Understanding Ecomobility

Practical sentiment

- Road closures
- Roads
- Infrastructure
- Access
- Safety
- Construction
- Parking
- Restrictions
- Lanes
- Security
- Dedicated lanes

Green sentiment

- Carbon
- Decongest
- Climate
- Green
- Emissions
- Environment
- Sustainable

Positive vs. Negative

Source: IBM Research
EcoMobility
legacy projects
EcoMobility Legacy Projects

- Convert the internal temporary dedicated public transport lanes as well as express lanes in the contraflow into a permanent features for buses, mini bus taxis and possibly car pools.
- Additional services and park and rides also to become permanent
- Ongoing construction of wider sidewalks and cycle lanes in and to the Sandton CBD
- Implementation of BRT (Rea Vaya) from different parts of the City
- Continue a bike distribution programmes in previously disadvantaged areas involving bike training, donations of bikes and establishment of bike empowerment centres
- Continue with the Vaya Moja App to provide information about public transport services and traffic conditions
- Partnership with and support private sector and communities initiatives to transform their roads for short periods for street activities.
The Johannesburg Declaration on Ecomobility and Cities
The Johannesburg Declaration on Ecomobility and Cities

- From 5 – 8 October, there was a series of Ecomobility Dialogues which was attended by international and local government leaders and practitioners on transport from at least 20 countries.
- The Dialogues culminated in a Leadership Roundtable which agreed to a Johannesburg Declaration on Ecomobility and Cities which looks at local, regional, national and international actions that should be taken in respect of priority on urban mobility to reduce GHG emissions.
- The Declaration is driven by the relationship between transport and GHG emission increase in City and the imperative to address this through low-carbon urban mobility.
Key provisions of Declaration

The Declaration contains a commitment by local governments and a call for action and support by other spheres of government on the following:

• Recognition of “Ecomobility” as integrated, socially inclusive and environmentally friendly transport options, giving priority to walking and cycling, public transport and shared mobility, as well as green freight.

• Transition to ecomobility will bring multiple benefits for people, cities and the planet: reduction in GHG emissions, new quality of public space, social integration, well-being and public health, increased access to services, cost savings, job creation, innovation and entrepreneurship.

• Adopt urban mobility policies that replace automobile-centred cities with people-friendly cities. Plan for compact cities with Transit Oriented Development. Reclaim street space for multifunctional uses.

• Prioritise quick low cost measures; develop and implement long-term ecomobility solutions that are financially viable in terms of investment and maintenance costs.

• Phase out direct, hidden or explicit subsidies for private motorised vehicles, their use and parking.

• Introduce concepts of new and shared mobility (including car sharing, carpooling, bike sharing and paratransit).

• Switch to lower carbon and zero carbon energy vehicles, small (human-scale) light electric vehicles.
Endorsing the Johannesburg Declaration on Ecomobility and Cities

- The Declaration includes self-commitments of local governments as well as their request to national governments and the international community for providing responsibilities, capacities, finances and enabling legal conditions to strengthen local action.

- It is now being endorsed by cities, organisations, multiplyers etc. around the world.

- See: http://www.ecomobilityfestival.org/the-johannesburg-declaration
Thank you
HOLGER DALKMANN
DIRECTOR,
EMBARQ

PEOPLE POWER: WALKING AND CYCLING IN LOW-CARBON TRANSPORT SYSTEMS

Transport Day 2015 • Paris
SAFE MOBILITY = HEALTHY & LOW CARBON FUTURE
The Netherlands Story: Stop Murdering Children - Safe Street Movement

In 1975 the traffic death rate was 20% higher in The Netherlands than in USA.

In 2008 it was 60% lower than in USA.

Photo: Dutch National Archive via London Cycling Campaign, StreetsBlog Network
AN UNSUSTAINABLE URBANIZATION PATH

FINANCE
75%
Of the 2050 infrastructure is yet to be built

CLIMATE
2%
of the land but
70%
of the CO₂ emissions

PEOPLE
1.25 Million
Traffic Fatalities

3.7 Million
Air Pollution premature deaths

3.2 Million
Physical Inactivity premature deaths

Source: Land use and emissions, UN-HABITAT. Infrastructure needs, Resilient Cities. Air pollution and traffic fatalities, WHO.
Reported Fatality Rates in Selected cities (per 100,000 population)

Source: EMBARQ/WRI data collected from government sources
A RADICAL ANSWER
ENABLE PARADIGM SHIFT: avoid-shift-improve

**AVOID** motorized travel through the integration of sustainable land use and transport planning – increasing accessibility, saving lives, and protecting the environment.

**SHIFT** to safer, healthier and more environmentally friendly modes, such as public and non-motorized transport. Or preserve the current share of these modes, particularly in developing countries.

**IMPROVE** vehicle and fuel technology of all modes of transport, and ensure safe system design and operations, to maximize health and environmental efficiency of each kilometer traveled.
DIFERENT MODELS, VERY DIFFERENT OUTCOMES

Atlanta
USA

Population (1990) : 2.5 million
Built-up area : 4,280 km²
Traffic fatality rate : 9.7/100,000 pop.
Carbon emissions : 7.5 tonnes CO₂/person
Mode share : Car 77%,
             Transit 3%,
             Biking 0%,
             Walking 1%

Barcelona
Spain

Population (1990) : 2.8 million
Built-up area : 162 km²
Traffic fatality rate : 1.9/100,000 pop.
Carbon emissions : 0.7 tonnes CO₂/person
Mode share : Car 20%,
             Transit 33%,
             Biking 12%,
             Walking 35%
23% Reduction for 2° and $20T

Source: IEA (2012) Energy Technology Perspectives

Road Travel (Billion Veh-Km)

- 4 Degree Scenario
- 2 Degree Scenario


42,971
33,194
HEALTH & SAFETY IMPACTS

Worldwide annual traffic fatalities

Source: EMBARQ Analysis, Duduta and Hidalgo (2013)
Macrobus BRT corridor
Guadalajara, Mexico

**Passengers per hour per direction (peak)**

- 2 general traffic lanes: 3,194
- 1 lane of bus rapid transit: 5,000

**Crashes per year**

- 2 general traffic lanes: 726
- 1 lane of bus rapid transit: 6

*Source: Jalisco State 2011, E.P.S. 2011, EMBARQ analysis*
Safe biking and walking
Bike and pedestrian facilities should form a network, with appropriate lane design, protection, signals, and parking facilities.
CITIES LOWERING SPEEDS

Paris = 30 kmh
New York City = 25 mph
Sao Paulo = 40 kmh
Brasilia declaration on road safety

- Adopted 19 November 2015
- Support for SDGs 3 and 11
  - Improving public transport, walking, and cycling are key to addressing traffic safety
- Links sustainability, resilience, urban growth and social equity
- Road safety connected to future New Urban Agenda with HABITAT-III
3 Future Policies ENABLE SAFE MOBILITY

- VISON ZERO FOR ALL
- NATIONAL LAW FOR SUSTAINABLE MOBILITY
- NATIONAL LAW ENABLING CITIES TO PLAN FOR A COMPACT CITY
THANK YOU!

Holger Dalkmann
Director of Strategy and Global Policy
Director of EMBARQ,
WRI Ross Center for Sustainable Cities

www.wri.org/publication/cities-safer
PEOPLE POWER: WALKING AND CYCLING IN LOW-CARBON TRANSPORT SYSTEMS
BERNARD ENSINK
SECRETARY GENERAL,
EUROPEAN CYCLISTS’ FEDERATION
AND WORLD CYCLING ALLIANCE

People Power: Walking and Cycling in Low-Carbon Transport Systems

Transport Day 2015 • Paris
Cycling delivers!

Bernhard Ensink
Secretary General

Transport Day 2015 – COP21 Paris
About 100 Civil Society Organisations from 6 continents
Cycling Delivers on the Global Goals
Shifting towards a better economy, society, and planet for all

A Global High Shift Cycling Scenario:
The Potential for Dramatically Increasing Bicycle and E-bike Use in Cities Around the World, with Estimated Energy, CO₂, and Cost Impacts

12 November 2015

By the Institute for Transportation & Development Policy and the University of California, Davis

Jacob Mason, Lew Fulton, Zane McDonald

Research commissioned by the Union Cycliste Internationale (UCI), the European Cyclists' Federation (ECF), and the Bicycle Product Suppliers Association (BPSA)
LEW FULTON
CO-DIRECTOR, STEPS PROGRAM, INSTITUTE OF TRANSPORTATION STUDIES, UC DAVIS

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Transport Day, COP21, Paris, December 7 2015
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Platform for Study

Explore how cycling and low powered e-bikes could become a core element of sustainable low-carbon development - concurrent with a high shift towards public transit.

- Affordability
- Health benefits
- Energy use
- CO₂ emissions
- Cost

- Convenience
- Reduced land use demand
- Accessibility
- Mobility
Method Overview

Data Collection

- Global cycling use
- Global e-bike use
- Bike Sharing Schemes (BSS)
- Bike Sales
- Current Infrastructure
- Current Policy
  - Policy impacts

Modeling/Projections/Scenarios

- BAU scenario
- High Shift Cycling (HSC) scenario
  - Sales
  - BSS
  - Infrastructure development
  - Policy
  - Cost impacts
  - Environmental impacts
Data collection:

• Largest known database of urban cycling mode share containing nearly 1,000 cities in 60 countries divided into 21 regions:
  ▪ Denmark
  ▪ France
  ▪ Germany
  ▪ Italy
  ▪ Netherland
  ▪ Nordic
  ▪ UK
  ▪ Other OECD Europe
    ▪ Japan
    ▪ Other OECD Pacific
    ▪ USA
    ▪ Canada
    ▪ Mexico
    ▪ Brazil
  ▪ Other LAC
    ▪ Africa
    ▪ Non-OECD Europe/Russia
    ▪ Middle East
    ▪ China
    ▪ India
    ▪ Other Asia

• Global e-bike and bike sales/stock
• BSS data for over 250 schemes internationally
• Cyclist traffic safety data
• Limited cyclist ridership data
• Bike related costs
E-Bikes

- Reduce Congestion
- Allow point-to-point transit without use of PT at or nearly at the speed of a LDV
- Much more affordable than comparable options
- Low level of physical exertion
- Relatively low footprint
- Open up possibility of intercity-commuting with bicycle superhighways
- Increase catchment radius of PT hubs by 7.7km from traditional bicycles

**Alleviated concerns:**
- Range
- Hills
- Heat
- Operator strength limitations
- Transit speed limitations
- Load limitations

**Benefits including:**
- Health
- Congestion relief
- Mobility equity
- GHG and PM mitigation
- Low cost
- Efficient use of public space

UCDAVIS
SUSTAINABLE TRANSPORTATION ENERGY PATHWAYS
Bike Sharing Schemes (BSS)

• Rapid global growth
• Eliminates purchase, storage, maintenance, and retrieval of bicycle
• Easy access to travelers
• Encourages first time users
• Innovations:
  o GPS tracking
  o Automated ‘smart-docking’
  o Tricycles
  o Greater resilience
  o Cargo bikes
  o Availability apps
  o Maintenance calls
  o Shared e-bikes
Business as Usual (BAU) Projection

• Likely future given current trajectories for transportation and development
• Assumed recent trends continue
  – Challenge to project cycling mode shares given a lack of time-series data
• We adopt a BAU future of slow steady trends
  – 2030 cycling per capita is typically within ± 10% baseline levels
High Shift Cycling (HSC) Scenario

- Examine the upper-limits of feasible cycling
- 2030 and 2050 targets based on:
  1. The average future city can approach the current cycling levels of ‘top performers’
  2. Certain percentage of trips are ‘cyclable’ based on trip distance
  3. Increases are constrained by a plausible maximum rate of change
- HSC requires:
  - Massive behavioral shift, Infrastructure development, Policy incentives
The results: rapid mode share increases in the HSC

- In the High Shift Scenario, there are similar mode share increases in OECD and non-OECD cycling
HSC Policy

• Rapid development of cycling infrastructure;
• Implement BSS, prioritizing connections to transit;
• Revise laws and enforcement practices to cycling;
• Invest in public transport to accommodate a wide variety of trips;
• Coordinate PT and land-use plans;
• Repeal policies that subsidize motorization (minimum parking requirements, free on-street parking, and fuel subsidies);
• Encourage cycling via pricing policies and information campaigns;
• Charge for negative externalities of driving (congestion pricing, VKT fees);
• Dedicate fuel taxes, driving fees, and other transport-system revenues toward investment in sustainable transport.
There are actually 3 scenarios

• BAU – business as usual, calibrated to IEA 4 degree scenario
• HS – our “High Shift” Scenario from our 2014 report, with very strong shifts from private vehicles to public transit. It contained some shifts to cycling/walking
• New HSC – our “High Shift Cycling” scenario, with much more ambitious increases in cycling and e-biking.

  – We compare HSC to a revised HS without cycling, and to BAU scenarios
Mode shares across scenario and year, non-OECD

Non-OECD 2030

Non-OECD 2050

Trillion PKT

2015 2030 BAU 2030 Previous 2030 New HSC

2050 BAU 2050 Previous 2050 New HSC

LDV  Bus  Other  cycling  e-bikes

UCDAVIS
SUSTAINABLE TRANSPORTATION ENERGY PATHWAYS
Comparing HSC to our previous High Shift Scenario - energy use impacts of cycling

HSC vs Old HS Energy Usage

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<thead>
<tr>
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<th>2030 OECD</th>
<th>2050 OECD</th>
<th>2030 Non-OECD</th>
<th>2050 Non-OECD</th>
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<tr>
<td>Other modes</td>
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<td>Ebikes</td>
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Electricity - Liquid fuels
CO₂ Emissions – deep reductions via modal shift and cycling

CO₂ Emissions by Scenario

<table>
<thead>
<tr>
<th>Year</th>
<th>2015</th>
<th>2030 BAU</th>
<th>2030 Old HS</th>
<th>2030 New HSC</th>
<th>2050 BAU</th>
<th>2050 Old HS</th>
<th>2050 New HSC</th>
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<tr>
<td></td>
<td>CO₂e (megatonnes)</td>
<td>OECD</td>
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Costs – massive savings from lower vehicle, fuel and infrastructure costs

Cost changes in 2030, Last year's HS v. Current HS Cycling Scenario

USD Trillions

- Energy cost electricity
- Energy cost liquid
- Infrastructure O&M cycle lanes
- Infrastructure O&M Parking
- Infrastructure O&M Roads/sidewalks
- Infrastructure Construction cycle lanes
- Infrastructure Construction Parking
- Infrastructure Construction Roads/sidewalks
- Operations and Maintenance Cycles-ebikes
- Operations and Maintenance Buses
- Operations and Maintenance LDVs/M2W
- Vehicle purchase ebikes
- Vehicle purchase bicycles
- Vehicle purchase Buses
- Vehicle purchase M2W
- Vehicle purchase LDVs
Summary Statistics

Better conditions for cycling and public transit in HS scenario relative to BAU:

• Saves an estimated $120Trillion USD cumulatively thru 2050
• Cuts CO₂ emissions from urban passenger transit by nearly 50% in 2050

Cycling and e-biking in HSC accounts for:

• $25Trillion USD cumulative cost reduction to 2050
• A 10% CO₂ reduction in 2050
• An estimated $700Billion average yearly savings in vehicle, fuel and infrastructure cost
Research needs going forward

• Better accumulation of trip distance data
• More complete data from developing regions
• Include quantification of health benefits and economic impact of improved societal health
• Include quantification of congestion relief
Thank you!
PEOPLE POWER: WALKING AND CYCLING IN LOW-CARBON TRANSPORT SYSTEMS
The necessity of walking for communities for equity, access for social cohesion, poverty alleviation for cities for business for liveable environments that attract workers for low carbon futures and clean air for public health for road safety for all transport options
7.3 billion reasons to invest in walking
walking has a lot to offer but also a lot to lose
Global Street Design Guide

Global Designing Cities Initiative

Walking needs space
Walking needs support
Walking needs data
but it matters how you measure it
Walking needs an equal footing
Walking needs super heroes
Walking doesn’t need carbon
Thank you

Bronwen Thornton

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